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Genus RHOPTROMYRMEX, revision of, and key to species

Insecta: Hymenoptera: Formicidae

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Rhoptromyrmex Mayr, 1901, Ann. naturh. Hofmus., Wien, 16: 18. Type Rhoptromyrmex globulinodis Mayr (one of two originally included species), by designation of Wheeler, 1911.
Rhoptromyrmex, Forel, 1902, Rev. suisse Zool., 10: 231.
Rhoptromyrmex subgenus Acidomyrmex Emery, 1915, Ann. Soc. ent. Fr., p. 191. Type Rhoptromyrmex wroughtonii Forel, by orig. designation.
Rhoptromyrmex, Arnold, 1917, Ann. s. afr. Mus., 14: 351.
Rhoptromyrmex subgenera Rhoptromyrmex + Acidomyrmex, Emery, 1922, Gen. Insect., 174: 289-290.
Rhoptromyrmex + Acidomyrmex (as separate genera), Wheeler, 1922, Bull. Amer. Mus. Nat. Hist., 45: 194-195, 672.

Worker: Size range—— TL about 2.4-4.0 mm. Head L 0.66-0.95, alitrunk L 0.63-1.02 mm. Essentially monomorphic, but slight allometric differences are seen in some nest series. Color usually tawny yellow, less often ranging to dark brown. Characters in general as for Tetramorium; antennae 12-segmented, with a distinct 3-segmented club. Head broader behind eyes than in front, occipital margin more or less concave in the middle, sides of head convex, so that the head and closed mandibles together are somewhat cordiform in full-face view. Clypeus convex, with rounded free margin projecting forward over mandibles, which are broad and convex, their outer margins curved and inner margins with a strong, acute apical tooth, a large subapical tooth, a much smaller antepenultimate tooth, and 4-5 or so irregular denticles basad of this. Palpi short and stout, segmented 3,2, confirmed for R. melleus and R. transversinodis in this study. Frontal carinae short, divergent behind. Alitrunk with dorsal sutures poorly indicated, but metanotal groove usually distinct. Propodeum armed with a pair of teeth, or unarmed. Petiole pedunculate, its underside tending to be longitudinally keel-like. Postpetiole broader than petiole and rather broadly joined to gaster.

Female: Known for four of the five species, and differing greatly among species (as well as varying considerably within species); more or less aberrant, with head and/or petiole and postpetiole modified much as in other myrmicine females of known or assumed parasitic habits. Antennae 12-segmented. Size of virgin female ranges from slightly smaller than largest conspecific worker to distinctly but moderately larger than the worker. Color usually darker and more brownish than the conspecific workers.

Male: Slender, about as large as, or slightly larger than, the conspecific female. Antennae 9- or 10-segmented, of the Tetramorium pattern. Mandibles broad, with a few coarse teeth, the apical tooth large, acute and meeting its opposite number. Palpi as in worker. Petiole long, more or less claviform, with a low and often indistinct node. Head usually finely sculptured, reticulate or striate; alitrunk smooth or partly sculptured; gaster smooth and shining. Wing venation as in Tetramorium, usually weak; radial cell closed or open. Genital capsule moderate in size, retractile and otherwise of the usual myrmcine type (only R. opacus dissected), with aedeagus rounded at apex, digitus of volsella with strongly curved apical (caudal) margin. Body color normally dark brown or black.

This card, and Pilot Register of Zoology Card Nos. 12 through 19 together constitute a revision of genus Rhoptromyrmex. The main conclusions of this revision are as follows:

1. The subgenus or genus Acidomyrmex, raised to include the Oriental species of Rhoptromyrmex by Emery, deserves to be recognized as no more than a simple species-group. Although the Oriental-Melanesian species always have propodeal teeth in the worker, these teeth vary from long spines to mere angulate plates within the single species R. wroughtonii. The female of R. melleus has the propodeum unarmed. The three African species, on the other hand, all lack propodeal teeth in the worker, but the female may have propodeal armament relatively well developed, as in R. transversinodis. Aside from the propodeal armament, the African and Oriental species seem to be very much alike, and it seems unrealistic to separate them at subgeneric, let alone generic level.

2. Some species formerly described in Rhoptromyrmex do not belong there. Arnold (1926, Ann. s. afr. Mus., 23: 271) has already reassigned R. arnoldi Santschi to Tetramorium, where he renamed it T. cruentatum. My examination of the type of R. arnoldi, now in the Santschi Collection at Basel, allows me to confirm Arnold's generic placement (but the species may well be a synonym of some older species in the termitobium group of Tetramorium). R. tessmanni Forel is synonymous with Macromischoides africanus (see PRZ Card No. 12); R. solleri Forel is reassigned to Monomorium (PRZ 18); and R. mayri Forel is placed in Hagioxenus (PRZ 19).

3. In place of the 18 named forms recognized by Emery in the Genera Insectorum in 1922, only five species are retained in the genus here; these are cited in the key below. Species-level synonymy is dealt with on PRZ Cards 14 through 17. It should be noted that Tetramorium salomo Mann, compared by its author with "Tetramorium melleum" in the original description, is not a Rhoptromyrmex (type examined in 1964).

Distribution: Africa south of the Sahara, but not yet known from the more arid areas or from East Africa; southern India and western China to Melanesia and northern Queensland. The extensions of range to western China and Australia are newly reported here. Over most of its range, the genus seems to be sporadic and local in occurrence.

Biology: Nests in the soil, often growing to very large size, with many thousands of workers. Nest usually surmounted by an irregular mound of earth particles, often with several to many entrances, and in extreme cases, forming elaborately castellated but fragile superstructures. General feeders, the ants collect living and dead arthropods, tend homopterous insects for their honeydew both above and below ground, and feed at plant nectaries.

Judging from the aberrant forms assumed by the known gynes (the gyne remains unknown in R. wroughtonii), all of the Rhoptromyrmex species are probably temporary social parasites; i. e., the nests are begun when the dealate gyne enters the nest of some other ant species (or one of its own species?) and is adopted, replacing the original queen. The brood of the inquiline is reared by the host workers and eventual replacement of these is gradually accomplished. In Rhoptromyrmex, no mixed colonies have yet been found to substantiate this hypothesis, and we can only guess what the host species might be. The fact that colonies, at least of the Indo-Australian species, are found singly and not close together speaks for the probable rarity of colony formation by budding from a parent colony.

The climatic range of the genus is primarily tropical and subtropical, and several collections have been made at elevations over 2,000 m, but the genus seems rarely or never to occur in lower-rainfall areas.

Key to species of Rhoptromyrmex based on the workers

1. Propodeum armed with a pair of teeth (Indo-Australian).....2
   Propodeum rounded, unarmed (African).....3

2. Propodeal teeth very long, about twice as long as the distance between the centers of their bases and just about as long as the maximum width of the prothorax; sculpture of head predominantly finely and densely reticulate-punctulate, longitudinal costulae obsolete or few and weak (N. Guinea, n. Cape York Pen.)..melleus

   Propodeal teeth variable in length, but less than twice as long as the distance between the centers of their bases, and shorter than the prothoracic width; head and usually also the alitrunk with fine, close longitudinal costulation prominent in the sculpture (India, China through Indonesia; n. Queensland) .....wroughtonii

3. Alitrunk (and usually also the head) with dense, opaque reticulate-punctulate sculpture throughout (w. and c. Africa)...opacus

   Head and alitrunk in large part smooth and shining (mainly southern Africa).....4

4. Postpetiole subglobular, up to about 1.5 times as broad as long, with a prominent rounded ventral protuberance.....globulinodis

   Postpetiole transversely subrectangular, about twice as broad as long, without a prominent rounded ventral protuberance .....transversinodis

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MACROMISCHOIDES AFRICANUS, new synonymy of

Insecta: Hymenoptera: Formicidae

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Pilot Register of Zoology
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Macromischa africana Mayr, 1866, Sitzb. Akad. Wiss. Wien, 53: 507, worker. Type locality Gold Coast.

Rhoptromyrmex Tessmanni Forel, 1910, Ann. Soc. ent. Belg., 54: 421, "female," recte worker. Type locality Alen, Spanish Guinea. Type in Muséum d'Histoire Naturelle, Geneva; examined 1963. New Synonymy.

The type of R. tessmanni is a begrimed worker of M. africanus with the apical sections of the antennae missing. It compares well with workers determined as Tetramorium africanum by Forel in his own collection.

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RHOPTROMYRMEX MELLEUS, brief characterization of,

Insecta: Hymenoptera: Formicidae

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Tetramorium melleum Emery, 1897, Termeszetr. Füz. 20: 586, pl. 15, fig. 29,30, worker. Type locality Belaio Island, near Friedrich-Wilhelmshafen (now Madang), New Guinea. Type in Hungarian National Museum, Budapest; not seen.

Rhoptromyrmex (Acidomyrmex) melleus, Emery, 1922, Gen. Insect., 174: 290.

Worker: A rather average Rhoptromyrmex in size and in its testaceous color, close to R. wroughtonii, but differing in the following respects:

1. Propodeal teeth very long, spiniform (about as long as twice the distance between the centers of their bases), their tips straight or curved outwards.
2. Sculpture of head and alitrunk predominantly densely reticulate-punctulate and opaque; longitudinal costulae (rugulae) of vertex absent or very few and weak, widely spaced. Rugulae of alitrunk also obsolete or nearly so, but there is a weak median longitudinal carinula on the pronotum.

Essentially, the worker is an exaggeration of the long-toothed variant of wroughtonii ("sumatrensis") of the Sumatran highlands. Were the worker of R. melleus not so constant throughout its range, one would be tempted to consider it conspecific with wroughtonii. The discovery of more intermediate material in the right places might of course lead to this merger, anyway.

Female, dealate, previously undescribed: TL 3.8, HL 0.75, HW (without eyes) 0.68, alitrunk L 1.06, scape L 0.54 mm. Cephalic index 91. (E. O. Wilson #1088).

General shape as shown in fig. 2; head as seen from front view with sides almost parallel, gently convex; occipital angles broadly rounded, occipital margin shallowly concave within a zone bounded by the lateral ocelli. Mandibles armed as in worker. Humeri broadly rounded. Petiole seen from above with node about as long as broad (0.20 mm) measuring from the spiracles. Postpetiole broader (W 0.34 mm) than long, subrectangular, with nearly parallel sides and rounded corners as seen from directly above; with a prominent rounded anteroventral process. Gaster broad and slightly flattened above anteriorly.

Integument of body smooth and shining throughout, with a few separated shallow punctures, especially on the occiput above the compound eyes. Appendages with indistinct, fine, dense punctulation, especially at extremities, but more smooth, shining near the body. Body nearly hairless; with only very fine, short, dilute, appressed pubescence on dorsum and occiput of head, on mandibles and appendages, on both nodes, and a little more conspicuously developed on both surfaces of gaster. Gastric apex with a few fine erect hairs. Color dark orange-brown to brown, gaster darkest, appendages lightest; ocellar triangle blackish. Another dealate female from Bisianumu, near Sogeri, Papua, is a little smaller: TL 3.1, HL 0.70, HW 0.64 (CI 91), WL 0.94, scape L 0.49 mm. Both the pilosity-pubescence and the punctures carrying the hairs are better-developed and more abundant in this specimen than in the one from Nadzab (Wilson #1088, described above). A few curved erect hairs are present on scutum and postpetiole, and are more abundant on the gastric dorsum and apex. Rather coarse punctures above and below the eyes tend to be elongate, with incipient ridges forming between them. Limited areas around the wing insertions are slightly roughened, especially the anterodorsal sides of the propodeum, which are finely and densely punctulate and opaque. Color as in Nadzab female, but head and gaster tend toward dark mahogany.

Male unknown.

Distribution: So far as known, the Island of New Guinea and one locality on northern Cape York Peninsula, Queensland, Australia.

The New Guinea-Papua records here cited are all from the collections of E. O. Wilson, and the numbers cited all refer to his notebook (see also below): Northeastern New Guinea: Huon Peninsula, Ebabaang, 1300-1400 m, No. 830, and Wamuki, 800 m, strays on ground, No. 853. Nadzab, dry evergreen forest, a dealate female, No. 1088, and workers foraging "in low arboreal zone," No. 1104. Bubia, near Lae, lowland rain forest, strays on top of large rotten log, No. 1076, and lower Busu River, near Lae, rain forest, "workers tending scale on branch of sapling" 2 m tall, No. 1022. Papua: Bisianumu, near Sogeri, about 500 m, rain forest strays, Nos. 617 and (female stray) 655; workers "extremely abundant in a clearing in the forest; tending aphids on bamboo shoots, and on extrafloral nectaries; a few workers carrying small insects. Nest in soil, marked by irregular piles of fine particles of excavated earth." Queensland: vicinity of Tozer Gap, Iron Range, northern Cape York Peninsula, in rain forest (P. F. Darlington).

Biology: About the Ebabaang collection (No. 830) Wilson wrote as follows: "Huge colony in soil between two buttresses of tree at trailside. Heaps of fine particles of excavated earth, but in no recognizable form. Once again I was unable to excavate well enough to hit brood or sexuals. Two great irregular columns of ants, comprising many thousands of individuals, proceeded from the nest along the trail (9 AM, sunny morning) on either side of the nest, fanning out in a few feet into the surrounding soil and leaf litter. A third column proceeded up the tree. Workers seemed to be everywhere on the ground within 20 feet of the nest, and all sorts of small arthropods— isopods, entomobryids, insects of various orders (Homoptera, Psocoptera, fragments of larger insects)— were being carried back to the nest. The total intake of insect food in a single day must be tremendous. Coccids (root mealybugs) were in the earthen galleries in the nest. There is no doubt that this huge colony completely "owned" a large area around its nest. It is remarkable that this is the only colony of the genus found thus far in the highlands— colonies must be few and far between, but huge in size, when they occur, as was my impression gained at Bisianumu."

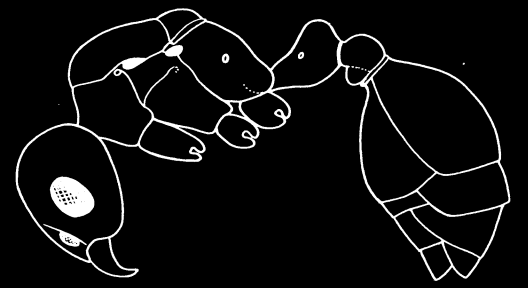

Fig. 2, Rhoptromyrmex melleus female (Nadzab, New Guinea)

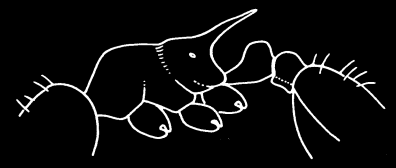

Fig. 1, Rhoptromyrmex melleus worker (Bisianumu, Papua)

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RHOPTROMYRMEX WROUGHTONII, new synonymy of, and brief characterization

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Insecta: Hymenoptera: Formicidae

Rhoptromyrmex Wroughtonii Forel, 1902, Rev. suisse Zool., 10: 231, worker, male. Type locality Kanara, India. Syntypes in Coll. Forel, Muséum d'Histoire Naturelle, Geneva, examined 1963.
Rhoptromyrmex Wroughtonii st. Rothneyi Forel, 1902, Rev. suisse Zool., 10: 232, worker. Type locality Bangalore, s. India. Syntypes in Muséum d'Histoire Naturelle, Geneva, examined 1963. New synonymy.
Rhoptromyrmex Wroughtonii st. Rothneyi var. Longi Forel, 1902, Rev. suisse Zool., 10: 232, worker. Type locality Garo Hills, Assam. Syntypes in Muséum d'Histoire Naturelle, Geneva, examined 1963. New synonymy.
Tetramorium wroughtoni Bingham, 1903, Fauna Brit. India, Hym. 2: 177, worker, Bernardmyo, Upper Burma.
Tetramorium rothneyi, Bingham, 1903, Fauna Brit. India, Hym. 2: 177, worker.
Rhoptromyrmex rothneyi var. intermedia Forel, 1913, Zool. Jahrb. Syst., 36: 80, worker. Type locality Beras Tagi, 4500 ft., Sumatra. Syntypes in Muséum d'Histoire Naturelle, Geneva; examined 1963. New synonymy.
Rhoptromyrmex rothneyi st. sumatrensis Forel, 1913, Zool. Jahrb. Syst., 36: 80, fig. W, worker. Type locality Kampong Keling, near Beras Tagi, 4500 ft., Sumatra. Syntypes in Muséum d'Histoire Naturelle, Geneva, examined 1963. New synonymy.
Rhopthromyrmex (!) rothneyi subsp. leno Viehmeyer, 1914, Ent. Mitt., 3: 113, worker. Type locality Perak. Type not seen. New synonymy.
Rhoptromyrmex (Acidomyrmex) var. taivanensis Wheeler, 1930, Proc. new engl. zool. Club, 11: 103, worker. Type locality Hakumo, Formosa. Syntypes in Museum of Comparative Zoology, Harvard University, examined 1964. New synonymy.

Worker: Varying markedly by locality in width of head, petiole and postpetiole; in length and form of propodeal teeth; in distinctness of promesonotal suture; and in a tendency toward reduction of either the fine reticulate sculpture or the superimposed longitudinal costulae (rugulae). The commonest and most widespread and constant form is the one that usually received the name "rothneyi". This has the head and alitrunk densely reticulo-punctulate and opaque, overlain with conspicuous longitudinal rugulae that are most numerous on the head, where they typically form a broad, more or less crowded band of longitudinal costulae filling the space between the frontal carinae, and often extend to the sides of the head as well; the alitrunk also frequently with well-developed rugulae. The propodeal teeth of this form may vary from short and triangular to moderately long and more or less spiniform.

In the extreme "sumatrensis" form of the Sumatran highlands, the propodeal spines are very long, and the cephalic rugulae are rather widely spaced, approaching in these respects the Melanesian species R. melleus. At the other extreme is the type series of R. wroughtonii, from western peninsular India; this form has the fine reticulate sculpture reduced, so that the interrugal spaces of the head, plus areas of the alitrunk, are definitely shining. This series also has short propodeal teeth, some of them nearly rectangular, and some varying markedly bilaterally in the same individual.

Petiolar node high and rounded apically; postpetiole with a rounded anteroventral process of varying distinctness, in most samples well-developed.

Female unknown; male not studied.

Distribution: Widespread in southeastern Asia, extending to southern peninsular India and northwestward into Yunnan and the Red Basin of western Szechuan, probably occurring widely in southern China; Philippines; Formosa; Hainan Island; Indonesia west at least to Sumba; base of Cape York Peninsula, northern Queensland. Localities for material reviewed in the Museum of Comparative Zoology, Harvard University: India: R. wroughtonii types, Kanara (Wroughton). China: Mo Man Shan, near Hsin Ching, western Szechuan Prov. (W. L. Brown, Jr.). Hills around Kunming, about 2500 m, Yunnan Prov. (Brown). Ta Han, Hainan I. (J. L. Gressitt). Formosa: var. taivanensis types, Hakumo (R. Takahashi). Karenko and Rokki (Gressitt). Philippines: Baguio, 700-2000 m., Luzon (F. X. Williams). Indonesia: Fort de Kock, Sumatra (E. Jacobson) Laora, 100 m, nw. Sumba Island (K. Dammerman). Australia: Crawford's Lookout, just off Millaa Millaa-to-Innisfail Road, northern Queensland, 300-900 m (P. F. Darlington). The western Chinese and Australian records represent great extensions of the known range.

Biology: In western China, this species is moderately common in open or wooded hilly country, and can be found among rice paddies, maize fields or pastures. Nests are usually not found close together; they seem to be made most often in red or yellow clay soil, and are surmounted by a crater or heap of soil particles that varies from a simple ring to a conspicuous, irregular, multi-turreted, castle-like edifice up to 75 cm in diameter and 50 cm high. The slender towers and chimneys are washed down by heavy rains, but new ones are built up within a few days. The nests often seem to be very populous, and the workers can be seen tending aphids on nearby plants. The Queensland collection was made in rain forest.

Synonymy: The types reviewed (and the description of subsp. leno) seem to me to represent a single variable species, the extremes of which are linked by a complete range of intergrades, as Forel himself made clear.

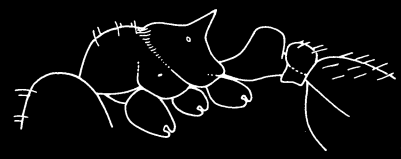

Fig. 1. Rhoptromyrmex wroughtonii, worker from Crawford's Lookout, northern Queensland

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RHOPTROMYRMEX OPACUS, new synonymy of, and brief characterization

Insecta: Hymenoptera: Formicidae

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Rhoptromyrmex opacus Emery, in Forel, 1909, Ann. Soc. ent. Belg., 53: 59, nota, worker. Type locality "Kamerun." Types in Museo Civico di Storia Naturale, Genoa (and elsewhere), examined 1963.

Rhoptromyrmex opacus var. esta Forel, 1909, Ann. Soc. ent. Belg., 53: 59, worker, female, male. Type locality "Bas Congo." Types in Muséum d'Histoire Naturelle, Geneva (and elsewhere), examined 1963. New synonymy.

Rhoptromyrmex opacus var. laeviceps Santschi, 1916, Ann. Soc. ent. Fr., 84: 504. worker. Type locality Boma, Congo. Type in Naturhistorisches Museum, Basel, examined 1963. New synonymy.

Rhoptromyrmex opacus subsp. monodi Bernard, 1952, Mem. Inst. fr. Afr. noire, 19 (1): 251, fig. 14F, worker. Type locality Ziéla, Mt. Nimba area, Guinea. Location of unique type unknown, but was to have been deposited in Muséum Nationale d'Histoire Naturelle, Paris; possibly still in the possession of Prof. Bernard. Not seen. Provisional new synonymy.

Worker with predominantly fine, opaque reticulate-punctulate sculpture over head and alitrunk; in some smaller specimens, the cepahalic sculpture may be more shallow and more nearly shining. Metanotal groove present, moderately to deeply impressed. Petiolar node moderate in height, with broadly rounded summit; postpetiole subglobular, slightly wider than petiolar node and wider than long, its ventral surface without a prominent rounded process or tumulus. Color dull yellow to brownish-orange; according to Bernard, the type of subsp. monodi has the occiput and alitrunk blackish-brown.

Female microgynous, no larger than the largest worker and smaller than the male, slender. Mandibles tending towards a falcate form; masticatory margins curved, oblique, leaving a large interspace; apical two teeth large and sharp, others are only small denticles. Propodeum evenly and gently convex in profile, without any trace of teeth. Petiole somewhat compressed, with a convex keel beneath; postpetiole with a prominent, rounded anteroventral process. Head with spaced rugae making a mainly longitudinal pattern. Rest of body predominantly smooth, shining; gaster with small but conspicuous punctures from which arise fairly long, mostly reclinate hairs. Color dark brown.

Male a little larger than the largest workers. Mandibles more or less like those of female, opposable; antennae with 9 segments, but former segmentation of long fusion segment is visible in some specimens. Petiole clavate, its node not very distinctly set off. Head above with sculpture much as in worker, sculpture otherwise predominantly smooth and shining. Gaster larger than in female, with prominent genitalia. Color as in female.

Distribution: Central and West Africa in higher-rainfall areas; sporadic. Records for samples in the Museum of Comparative Zoology and the California Academy of Science as follows: Thysville, Congo (J. C. Bequaert). 50 km s. of Tahela, Congo, and km 94 on Kavumu-Walikale Route, 900 m, Congo (E. S. Ross and R. E. Leech).

Biology: According to the collector, the Thysville sample came from a populous nest in sandy soil in savanna.

Synonymy: The types of var. esta are unremarkable specimens of opacus; the laeviceps type is just a small individual with allometrically shallow head sculpture. The figures of subsp. monodi in the original description, especially that of the propodeum (fig. 14F), is particularly puzzling, especially since that purporting to be R. opacus on the same page (fig. 14E) bears no resemblance to the propodeum of workers of that species in my experience. I am accepting Bernard's opinion that the form belongs to opacus. It appears to be a dark variant.

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RHOPTROMYRMEX TRANSVERSINODIS, new synonymy of, and brief characterization

Insecta: Hymenoptera: Formicidae

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Rhoptromyrmex transversinodis Mayr, 1901, Ann. naturh. Hofmus., Wien, 16: 22, worker. Type locality Port Elizabeth, S. Africa (by present selection); other original locality Bothaville, S. Africa. Syntypes in Naturhistorisches Museum, Vienna (and elsewhere) examined 1963. Arnold, 1917, Ann. s. afr. Mus., 14: 355, figs. 112, 113, worker, female, Pretoria, S. Africa.

Rhoptromyrmex Steini Forel, 1913, Ann. Soc. ent. Belg., 57: 122, worker. Type locality Ladismith, Cape Province. Syntypes in Muséum d'Histoire Naturelle, Geneva (and elsewhere), examined 1963. Arnold, 1917, Ann. s. afr. Mus., 14: 357, worker. New synonymy.

Rhoptromyrmex transversinodis var. pretoriae Arnold, 1926, Ann. s. afr. Mus., 23: 282, worker, female, male. Type locality Pretoria, S. Africa; other localities M'fongosi, Zululand and Matroosberg, Hex River Mts., S. Africa; paratypes from Matroosberg examined 1963. New synonymy.

Worker easily recognized by its high, narrowly-rounded petiolar node and transverse petiole, which is about twice as broad as long. No ventral postpetiolar process. Body predominantly smooth and shining, color yellow to yellowish-brown.

Female a highly aberrant ant, even as compared to the other known females of the genus, and like them, it varies from locality to locality. The rimmed occipital lobes, overhanging mesonotum, deep, compressed petiole, transverse postpetiole and broad, anteriorly impressed gaster are characters more or less similarly developed in gynes of several ant genera known or suspected to found their colonies as inquilines in the nests of other ants. Most of the adaptations apparently function to protect vital body joints against the mandibles of workers of prospective host species. Females from Pretoria have shining integument rather densely sown with tiny elongate pits, into each of which is fitted a minute, appressed squamiform seta (Arnold thought there were no setae). Erect pilosity or pubescence is lacking. Color darker and more brownish than in corresponding workers. Arnold describes another form of female from Zululand as "clothed with a sparing and fairly long, greyish pubescence, oblique on legs and antennae, decumbent elsewhere. The vertex is exceedingly finely and sparsely punctured, the rest of the body impunctate, and the shallow elliptical punctures.... are entirely absent."

Distribution: Union of South Africa, widespread but apparently sporadic from southern Cape Province to Transvaal and Zululand.

Synonymy: R. steini is based on rather large workers, and the var. pretoriae on smaller, lighter ones. While some slight allometric differences are to be found among these workers in head shape, form of petiole, etc., the same kind of variation is found in the transversinodis type series. The females are more of a problem. Differences mentioned by Arnold in 1926 as marking the "typical" species and var. pretoriae could indicate the existence of different species, but since the females of the other species of the genus seem equally variable, it seems best to accept the variation as intraspecific until it is better known.

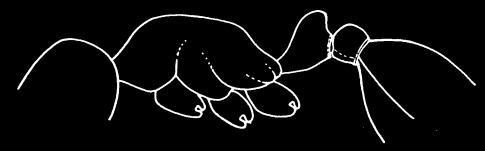

Fig. 1.

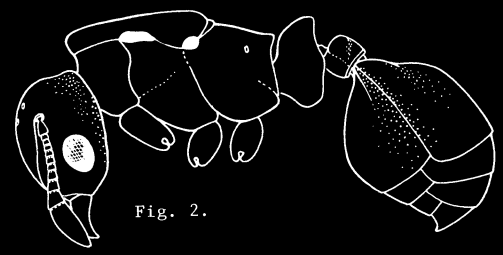

Fig. 2.

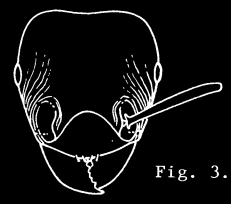

Fig. 3.

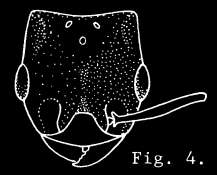

Fig. 4.

Rhoptromyrmex transversinodis
Figures 1 and 3, syntype worker.
Figures 2 and 4, ♀, Pretoria.

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RHOPTROMYRMEX GLOBULINODIS, new synonymy of, and brief characterization

Insecta: Hymenoptera: Formicidae

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Rhoptromyrmex globulinodis Mayr, 1901, Ann. naturh. Hofmus., Wien, 16: 20, worker, gyne, male. Type locality Port Elizabeth, S. Africa. Types in Naturhistorisches Museum, Vienna (and elsewhere); examined 1963.
Rhoptromyrmex globulinodis st. Alberti Forel, 1916, Rev. suisse Zool., 24: 419, worker. Type locality "Congo." Types in Muséum d'Histoire Naturelle, Geneva (and elsewhere), examined 1963. New synonymy.
Rhoptromyrmex globulinodis var. obscurus Santschi, 1932, Livre centen. Soc. ent. Fr., p. 389, worker, male. Type locality Cloudland, 6000 ft., Vumba Mts., S. Rhodesia. Types in Naturhistorisches Museum, Basel (and elsewhere) examined 1963. New synonymy.

Worker: Most like R. opacus in form, but with the sculpture of upper head and alitrunk reduced, integument in large part smooth and shining; fine punctures often occur on the occiput, and the alitrunk may have areas of fine obsolescent striolation above, shading to indistinct but subopaque punctulo-reticulation on the pleura. Petiolar node thick, not high; postpetiole subglobular, up to about 1.5 times as broad as long, differing from those of opacus and transversinodis in that it has a prominent rounded process or tumulus projecting somewhat forward as well as downward from its ventral surface. Color yellow to dark brown.

Female: About the length of the largest workers, or a trifle longer, with head less aberrant than that of transversinodis. Body very slender; gaster long and narrow, with a shallow basidorsal impression. Head striate above eyes; pronotum and propodeum finely striolate-shagreened; rest of body mostly smooth, predominantly shining. Long fine oblique pilosity on gaster, grading to shorter pubescence-like pilosity on head and elsewhere, but amount and length of pilosity vary markedly in female samples from two different localities. Color dark brown.

Male: Similar in size and sculpture to female. Antennae 9-segmented. Petiole subclavate, low, its node not differentiated from its peduncle. Color dark brown, head darkest.

Distribution: Southern Africa, from Congo south to south coast of Cape Province, sporadic.

Synonymy: The form alberti is only an allometric variant at the small end of the size range of the species; obscurus is based on a dark-colored montane variant of the kind common among ants.

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MONOMORIUM SOLLERI comb. nov.

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Insecta: Hymenoptera: Formicidae

pro Rhoptromyrmex Solleri Forel, 1910, Ann. Soc. ent. Belg., 54: 430, alate female. Type locality given as "Bissao, Senegal," probably refers to Bissau in nearby Portuguese Guinea. Type in Muséum d'Histoire Naturelle, Geneva, examined 1963.

The holotype of R. solleri has 12-segmented antennae with weak 3-segmented clubs, and the palpi are segmented 2, 2. This female, as Forel himself hinted in the description, does not fit well in Rhoptromyrmex, but seems instead to belong to the Monomorium destructor-M. gracillimum group ("subgenus Parholcomyrmex"). It is intermediate between the destructor and gracillimum females in size, and differs from these two species also in sculptural details.

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HAGIOXENUS MAYRI comb. nov.

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Insecta: Hymenoptera: Formicidae

pro Rhoptromyrmex Mayri Forel, 1912, Zool. Jahrb., suppl. 15, 1: 57, alate female. Type locality Poona, India. Type in Muséum d'Histoire Naturelle, Geneva, examined 1963.

The R. mayri type is an aberrant form, obviously a parasite of some kind, but it is much more similar to the types of Hagioxenus schmitzi than to any of the known Rhoptromyrmex females; furthermore, as Forel noted in the original description, the radial cell is closed.

From H. schmitzi, H. mayri is distinguished by its much more abundant pilosity and by other relatively small differences. The type was collected "together with Pheidole latinoda."

Parasitic myrmicines are frequently much modified, with loss or reduction of some characters, and are particularly likely to converge in habitus. Even the rather close resemblance of H. schmitzi and H. mayri could of course be due to convergence.

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